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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,567	03/11/2005	Tonja R. Sutton	62603A	7321

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The Dow Chemical Company
Intellectual Property Section
P.O. Box 1967
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EXAMINER	
LEE, JAEYUN	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
09/15/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,567	SUTTON ET AL.	
	Examiner	Art Unit	
	JAEYUN LEE	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6-13 and 15-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6-13 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment filed on 3/11/2009. Claims 1-3, 6-13, and 15-17 remain pending and claims 4-5, and 14 are cancelled.

2. The rejection of claims 1-3, 6-13, and 15-17 under 35 U.S.C. 103(a) as being unpatentable over BETSO et al. (US 5,576,374) in view of SCHEURING et al. (US 6,419,864) and SARGENT (US 5,401,154) as set forth in paragraph 9 of previous action, has been withdrawn in light of the presented arguments.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-3, 6-13, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over BETSO et al. (US 5,576,374) in view of and SARGENT (US 5,401,154) and ADEDEJI et al. (WO 02/43943 A1, newly cited).

With respect to claims 1, 7, 13, and 15, BETSO et al. disclose a method of making a fiber reinforced thermoplastic polymer composition and forming a fabricated article therefrom comprising the steps of: introducing into an extruder a thermoplastic polymer, introducing into the extruder an elastomer ('substantially linear ethylene/alpha olefin polymer' (column 3, lines 18-27); '…Thermoplastic olefins (TPOs) are generally produced from blends of an elastomeric material…' (column 1, lines 50-51); '…polypropylene impact copolymers… can also be used in the TPO formulations' (column 9, lines 10-14)), plasticating the thermoplastic polymer composition ('melt

mixing'), introducing a reinforcing fiber material (...at least one filler...; column 3, line 27; ...fillers includes...glass fiber...; column 6, lines 12-14), extruding a molten fiber reinforced thermoplastic polymer composition and forming a fabricated article (…any convenient method,…. Melt mixing directly in the extruder used to make the finished article e.g. the automotive part… such as bumpers, facia, etc.; column 9, lines 31-35) comprising the fiber reinforced thermoplastic polymer composition (TPO formulation containing glass fibers as miscellaneous fillers (column 6, lines 12-14)) (column 9, lines 31-52); wherein the reinforcing fiber material is glass fibers.

Although BETSO et al. disclose thermoplastic olefins (TPOs) are generally produced from blends of an elastomeric material (column 1, lines 50-51); wherein the composition comprise: a thermoplastic polymer, at least one linear or substantially linear ethylene/alpha olefin polymer, and at least one filler (column 3, lines 18-27); wherein fillers include glass fibers (column 6, lines 12-14) as a reinforcing fiber material, it is silent as to introducing a continuous reinforcing fiber material wherein the reinforcing fiber material is a plurality of continuous glass fiber which are fed in a separate stream line and are added to the melt mixed thermoplastic polymer. Also, it is silent as to the thermoplastic polymer and a masterbatch comprising elastomeric material being fed into the extruder in a separate stream line as well. Further, it is silent as to the extruder being a single screw or a twin screw extruder.

One reading BETSO et al. as a whole would have readily appreciated that the reference is not concerned with how the thermoplastic material, elastomeric material

and fillers are added into the extruder and what type of extruder being used and what form of reinforcing glass fiber being fed into the extruder (column 9, lines 31-36).

Examiner notes that '…the formulations are compounded by any convenient method, including dry blending the individual components…' (column 9, lines 31-33) does not limit the method of compounding such formulations. Dry blending of components and melt mixing is another way for the method of compounding the formulations and the reference explicitly states that it can be compounded by any convenient method. Therefore, one skilled in the art would have readily appreciated to employ such formulations to be compounded by a conventional method other than dry blending method.

It is known in an a twin screw extruder for compounding a fiber reinforced thermoplastic material and forming parts therefrom art (SARGENT; title, abstract) that the fiber source 19 for feeding a plurality of reinforcing fiber such as glass fibers into the molten thermoplastic material in the barrel is provided (column 3, lines 44-52; figure 1, items 19 and 23) wherein continuous reinforcing fiber can be used (column 6, lines 2-4).

It is known in methods for molding and processing blends with thermoplastic resins (title; ADEDEJI et al.) wherein the thermoplastic resin is fed into hopper 10 which feeds a single screw compounding extruder 20 in feed section 21. The thermoplastic resin is melted within extruder 20 in melting zone 22. An additional component is introduced to extruder 20 through port 30. The thermoplastic resin is compounded with the additional component to form a homogeneous molten blend in mixing zone 23 downstream of port 30 and is feed from extruder 20 through an outlet 24 downstream of

mixing zone 23 to an accumulator 50 positioned on top of extruder 20 (p.17, lines 7-16; figure 1); wherein the additional component that is added to the blend of thermoplastic resin may be an impact modifier, flame retardant, plasticizer, antioxidant, colorant, etc. wherein a suitable impact modifying material includes natural rubbers, thermoplastic elastomer, etc. (p.10, lines 15-26).

Therefore, it would have been obvious to at the time of the Applicant's invention to one of ordinary skilled in the art to employ a reinforcing glass fibers of BETSO et al. to be a plurality of continuous glass fibers as taught by SARGENT as a well known reinforcing fiber material in making a fiber reinforced thermoplastic polymer art and such fibers of BETSO et al. as modified by SARGENT to be introduced in a separate stream line into a twin extruder as taught by SARGENT to achieve a homogeneous, molten mass of thermoplastic material having fibers randomly dispersed within as each screw results in a different fiber distribution as taught by SARGENT (column 6, lines 9-11; column 5, lines 64-65).

Also, it would have been obvious at the time of the Applicant's invention to one of ordinary skilled in the art to introduce thermoplastic polymer and elastomeric material of BETSO et al. into an extruder of BETSO et al. as modified by SARGENT having two different feeding inlets wherein one inlet receiving thermoplastic polymer and the another inlet receiving additional component such as thermoplastic elastomers and stabilizer, colorant, etc. (a masterbatch comprising elastomer) as taught by ADEDEJI et al. to form a molten thermoplastic polymer composition of BETSO et al. as modified by

SARGENT so that the desired amount of thermoplastic polymer and masterbatch comprising elastomer put into the extruder can be controlled separately.

With respect to claims 2-3, although, BETSO et al. do not explicitly disclose the method as claimed in claims 2-3, it is known in an apparatus for compounding a fiber reinforced thermoplastic material and forming parts therefrom art (SARGENT; title) discloses the step of i) extruding the molten fiber reinforced thermoplastic polymer composition through a die forming a continuous extrusion of heated fiber reinforced thermoplastic polymer composition having a desired cross sectional shape (column 2, lines 30-34), ii) conveying the continuous extrusion of heated fiber reinforced thermoplastic polymer composition to a cutter, iii) cutting the continuous extrusion into a plurality of performs (column 2, lines 45-50), and iv) conveying the performs away from the cutter into a compression mold (column 2, lines 54-59).

Therefore, it would have been obvious at the time of the Applicant's invention to one of ordinary skilled in the art to include extruding the molten fiber reinforced thermoplastic polymer composition of BETSO et al. as modified by SARGENT and ADEDEJI et al. through an extrusion die forming a continuous extrusion having desired cross section, conveying the continuous extrusion to a cutter, cutting the continuous extrusion into a plurality of performs, and conveying the performs away form the cutter into a compression mold as taught by SARGET in the method of BETSO et al. as modified by SARGENT and ADEDEJI et al. to improve cost competitiveness since it eliminates the extra step of reheating a reinforced thermoplastic perform prior to the molding step as taught by SARGENT (column 2, lines 60-63).

With respect to claim 6, BETSO et al. as modified by SARGENT and ADEDEJI et al. disclose extruding the molten fiber reinforced thermoplastic polymer composition through an extrusion die having a desired shape (column 9, lines 31-36) and fabricating articles via profile extrusion (column 9, lines 38-40 and line 49).

Therefore, extruding through a profile extrusion die having a desired shape is inherent to profile extrusion.

With respect to claim 8-11, BETSO et al. as modified by SARGENT and ADEDEJI et al. disclose wherein the elastomer is a polyolefin elastomer (substantially linear ethylene/alpha olefin polymer); wherein the elastomer is a linear ethylene polymer comprising ethylene and a C3 to C20 alpha olefin; wherein the elastomer is a linear ethylene polymer comprising ethylene and an alpha olefin selected group consisting of propene (propene is the IUPAC name for propylene), butane, hexene, or 1-octene; wherein the elastomer is a substantially linear polyethylene polymer comprising ethylene and 1-octene (column 3, lines 25-26; column 5, lines 1-15; an ethylene polymer is inherently a polyethylene).

The examiner notes that '...the thermoplastic olefins (TPOs) are generally produced from blends of an elastomeric material such as EPM or EPDM,...' (column 1, lines 50-52); wherein '…polypropylene impact copolymers can also be used in the TPO formulations…' (column 9, lines 10-14); wherein '...substantially liner ethylene/alpha olefin polymers or copolymers for use in impact modifying the selected thermoplastic or polyolefin... are interpolymers of ethylene with at least one C3-C20 alpha olefin... and 1-octene are especially preferred...' (column 5, lines 1-15). Therefore, it is inherently

disclose that the substantially linear ethylene/alpha olefin polymer (polyolefin) is an elastomer.

With respect to claim 12, BETSO et al. as modified by SARGENT and ADEDEJI et al. disclose wherein the masterbatch (as modified by SARGENT and ADEDEJI et al.) further comprises talc, clay, calcium carbonate (column 5, line 66 to column 6, line 1), colorants, and antioxidant or an antistat (column 6, lines 30-33).

Note here that elastomer of BETSO et al. as modified by SARGENT is combined with other components such as talc, clay, calcium, etc. of BETSO et al. as modified by SARGENT and fed in the separate line as to thermoplastic polymer of BETSO et al. as modified by SARGENT as taught by ADEDEJI et al. which makes the masterbatch as claimed.

With respect to claim 16, BETSO et al. as modified by SARGENT and ADDEDJI disclose wherein the fabricated articles include automotive bumpers, facia, wheel covers and grilles, wire, cable operations, household and personal articles including for example freezer containers etc. (column 1, lines 59-61; column 9, lines 49-52).

With respect to claim 17, although BETSO et al. do not explicitly disclose the fabricated article is a golf cart underbody, it discloses the automotive facia which is vehicle underbody. Since the golf cart underbody is a vehicle underbody, it would have been obvious at the time of the Applicant's invention to one of ordinary skill in the art to incorporate the material and the method of BETSO et al. as modified by SARGENT and ADDEDJI et al. to fabricate the vehicle underbody such as golf cart underbody.

Response to Arguments

5. Applicant's arguments with respect to claims 1-3, 6-13, and 15-17 have been considered but are moot in view of the new ground(s) of rejection.

In response to Applicant's remark on p.5 that the three cited prior art references fail to disclose the use of a masterbatch comprising an elastomer wherein the elastomer is one of the additives dispersed in the carrier resin, BETSO et al. (US 5,576,374) in view of and SARGENT (US 5,401,154) and ADEDEJI et al. (WO 02/43943 A1) disclose the method comprising the steps of introducing into an extruder a thermoplastic polymer (of BETSO et al.); introducing into the extruder a masterbatch comprising an elastomer (of BETSO et al. as modified by SARGENT and ADEDEJI et al.) as discussed in paragraph 5 above.

Again the examiner note that elastomer of BETSO et al. as modified by SARGENT is combined with other components such as talc, clay, calcium, etc. of BETSO et al. as modified by SARGENT and fed in the separate line as to thermoplastic polymer of BETSO et al. as modified by SARGENT as taught by ADEDEJI et al. which makes the masterbatch as claimed.

Therefore, it would have been obvious to at the time of the Applicant's invention to one of ordinary skilled in the art to employ a reinforcing glass fibers of BETSO et al. to be a plurality of continuous glass fibers as taught by SARGENT as a well known reinforcing fiber material in making a fiber reinforced thermoplastic polymer art and such fibers of BETSO et al. as modified by SARGENT to be introduced in a separate stream line into a twin extruder as taught by SARGENT to achieve a homogeneous, molten

mass of thermoplastic material having fibers randomly dispersed within as each screw results in a different fiber distribution as taught by SARGENT (column 6, lines 9-11; column 5, lines 64-65).

Also, it would have been obvious at the time of the Applicant's invention to one of ordinary skilled in the art to introduce thermoplastic polymer and elastomeric material of BETSO et al. into an extruder of BETSO et al. as modified by SARGENT having two different feeding inlets wherein one inlet receiving thermoplastic polymer and the another inlet receiving additional component such as thermoplastic elastomers and stabilizer, colorant, etc. (a masterbatch comprising elastomer) as taught by ADEDEJI et al. to form a molten thermoplastic polymer composition of BETSO et al. as modified by SARGENT so that the desired amount of thermoplastic polymer and masterbatch comprising elastomer put into the extruder can be controlled separately.

In response to applicant's arguments against the references individually such as on p.6 of remark that the SARGENT does not disclose TPO resins, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Again, BETSO et al. (US 5,576,374) in view of and SARGENT (US 5,401,154) and ADEDEJI et al. (WO 02/43943 A1) disclose the method comprising the steps of introducing into an extruder a thermoplastic polymer (of BETSO et al.); introducing into the extruder a masterbatch comprising an elastomer (of BETSO et al. as modified by SARGENT and ADEDEJI et al.) as discussed in paragraph 5 above.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAEYUN LEE whose telephone number is (571)270-5114. The examiner can normally be reached on Monday thru Friday 8am to 5pm est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Aftergut/
Primary Examiner, Art Unit 1791

/JL/
8/27/2007